

## CERTIFICATION REVIEW

- ▶ **IMAR also known as the SMARR** is required for each NASA launch service managed by the KSC Launch Services Program Office to verify and validate SMA implementation.
  - Objective Quality Evidence (OQE) – Record of the IMAR or SMARR, action items and disposition
- ▶ **Kennedy Space Center (KSC) SMA Director, as the Center Directors Agent**, provides an independent SMA assessment of the launch service (for launch services managed by the KSC Launch Services Program Office), to include a risk assessment at the IMAR.
  - OQE – A record of the Expendable Launch Vehicle (ELV) pre-launch reviews
- ▶ **Center Directors Responsible for the Spacecraft and/or Instruments** participate in the IMAR for each associated NASA spacecraft and/or instrument being launched.
  - OQE – IMAR or SMARR Meeting Minutes or Attendance List
- ▶ The following parties participate in the CoFR decision process:
  - Chief Safety & Mission Assurance Officer
  - Launch Services Program Manager
  - KSC Safety and Mission Assurance Director as the Center Director's Agent
- OQE – CoFR Signatures or Attendance to Reviews Leading to the CoFR Signing



**YOUR PREPAREDNESS FOR AN AUDIT OF NASA SPACECRAFT, INSTRUMENTS, AND LAUNCH SERVICES POLICY REQUIREMENTS WITH THESE SAMPLE AUDIT GUIDE QUESTIONS.**

### MANAGEMENT:

1. How were SMA Requirements in the Certification of Flight Readiness Review verified prior to concurrence signature of the Chief Safety & Mission Assurance Officer of Designee? Are all of the Spacecraft and/or Instruments contracts SMA and risk management requirements documented?
2. Has the Launch Services Program Manager defined, documented and implemented launch service SMA risk management requirements for each program-managed launch service? How were implementation plans invoked?

### GENERAL:

1. How was the Program's Risk Assessment documented?
2. What is the current status of your program's identified risks?
3. When was the last time the Responsible Mission AA reviewed the program's risk assessment?
4. Have the deficiencies from the last program audit been corrected?
5. What is the status of your program with regards to the certification review process?
6. Was a risk assessment provided at the last IMAR?
7. Has the Center Director evaluated the implementation of SMA and risk management requirements in existing spacecraft and instrument contracts, agreements, grants, and other acquisition instruments and recommended changes?

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NASA  
SAFETY AND MISSION  
ASSURANCE  
REQUIREMENTS

## NPD 8700.3

# Safety and Mission Assurance Policy for NASA Spacecraft, Instruments and Launch Services

## Compliance Verification Guide



OFFICE OF SAFETY AND  
MISSION ASSURANCE

This brochure is intended to be used as a guide only not as a replacement for the actual policy. To review the NASA Policy for Spacecraft Instruments and Launch Services (NPD 8700.3) in its entirety see  
<http://www.hq.nasa.gov/office/codeq/doctree/texttree.htm>

## Objective

- ❖ To establish Safety and Mission Assurance (SMA) requirements for NASA Spacecraft, Instruments, and Launch Services including integration of the Payload with the Launch Vehicle.
- ❖ To conduct periodic audits of all elements of the project including spacecraft, instrument, and launch service providers to verify that SMA and risk management requirements and processes have been implemented.
- ❖ To verify and validate SMA and risk management process implementation for each mission through a Certification of Flight Readiness (CoFR) process supported by and Integrated Mission Assurance Review (IMAR) or Safety and Mission Assurance Readiness Review (SMARR). When appropriate, the CoFR will include the signature of the spacecraft or instrument contractor in addition to the signatures specified in NPD 8610.24, paragraph 5.d.(2).

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- The diagram illustrates the Mars Observer spacecraft, a complex machine designed for interplanetary travel. It features a large white parabolic dish antenna at the top, a central body with various instruments, and a circular solar panel on the side. Several components are labeled with lines pointing to them, and each label is accompanied by a small icon in a square box.
- Spin-Heading Device to Rotate Magnetized Tape Magnetometer on Board:** 111 rotation, 36.3 feet long. (Icon: A tape reel with a magnetic tape loop.)
  - 2-Way Communication:** High- and Low-gain Antennas (1 of 2). (Icon: A telephone handset.)
  - Science Communications:** (Icon: A radio antenna.)
  - Reaction Torque Wobble:** (Icon: A stylized human figure with a wobble line.)
  - Fast Neutron/Alpha Imaging Instrument:** (Icon: An eye with a grid pattern.)
  - Autonomous Probe:** (Icon: A person with a probe.)
  - Thermal Legs:** Operation, Thrusters (1 of 6). (Icon: A person with legs.)
  - Working Legs:** Main legs and struts. (Icon: A person with legs.)
  - Power:** Power Supply (1 of 3). (Icon: A battery or power source.)
  - Heat Shield:** Heat Protection, Cosmic Dust Analyzer. (Icon: A shield with a dust particle.)
  - Cam:** Camera. (Icon: An eye.)

## ESTABLISHING AND IMPLEMENTING REQUIREMENTS

- ▶ **Center SMA Directors who are responsible for the spacecraft and/or instruments**
  - For NASA missions using the launch services not managed by the KSC, Launch Services Program Office coordinates spacecraft, instrument, and launch service CoFR activities with the Chief Safety & Mission Assurance Officer.
  - **OQE - NASA Contracts, CoFR**

- ## AUDITS AND INDEPENDENT ASSESSMENTS

- ▶ **Launch Services Program Manager**
  - Performs periodic audits of launch service providers and performs joint audits with the providers of key suppliers to verify ongoing implementation of agreed-to or contractual SMA and risk management requirements and processes.
    - **OQE – Audit/Assessment Reports and Plans**
  - Conducts independent, technical, and internal assessments of launch service SMA process implementation.
    - **OQE – Assessment Report and Plans**
- ▶ **Center Directors who are responsible for the spacecraft and/or instruments**
  - Perform periodic audits of spacecraft and instrument providers and perform joint audits with the providers of their key suppliers to verify ongoing implementation of agreed-to or contractual SMA and risk management requirements and processes.
    - **OQE – Audit/Assessment Plans**
  - Evaluate the implementation of SMA and risk management requirements in existing spacecraft and instrument contracts, agreements, grants, and other acquisition instruments and recommending changes.
    - **OQE – Evaluations and Assessment of contracts with regards to SMA and Risk Management Requirements**